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# PATENT COOPERATION TREATY

From the INTERNATIONAL SEARCHING AUTHORITY

**PCT**

To:  
 McNeight & Lawrence  
 Attn. COLLINGWOOD, A.R.  
 Regent House, Heaton Lane  
 Stockport, Cheshire SK4 1BS  
 UNITED KINGDOM

## INVITATION TO PAY ADDITIONAL FEES

(PCT Article 17(3)(a) and Rule 40.1)

Date of mailing  
(day/month/year)

12/01/2001

**PAYMENT DUE**

within 30 ~~10~~ days from the above date of mailing

Applicant's or agent's file reference  
**M99/0 596/PCT**

International filing date  
(day/month/year)

01/09/2000

International application No.  
**PCT/GB 00/03336**

Applicant  
**REFLEC PLC et al.**

1. This International Searching Authority

- (i) considers that there are 4 (number of) inventions claimed in the international application covered by the claims indicated ~~now~~ on the extra sheet:

and it considers that the international application does not comply with the requirements of unity of invention (Rules 13.1, 13.2 and 13.3) for the reasons indicated ~~now~~ on the extra sheet:

- (ii)  has carried out a partial international search (see Annex)  will establish the international search report on those parts of the international application which relate to the invention first mentioned in claims Nos.:  
**1-5, 69**

- (iii) will establish the international search report on the other parts of the international application only if, and to the extent to which, additional fees are paid

2. The applicant is hereby invited, within the time limit indicated above, to pay the amount indicated below:

GBP 572,00 x 3 = GBP 1,716,00  
Fee per additional invention      number of additional inventions      total amount of additional fees

Or, EUR 945,00 x 3 = EUR 2,835,00

The applicant is informed that, according to Rule 40.2(c), the payment of any additional fee may be made under protest, i.e., a reasoned statement to the effect that the international application complies with the requirement of unity of invention or that the amount of the required additional fee is excessive.

3.  Claim(s) Nos. \_\_\_\_\_ have been found to be unsearchable under Article 17(2)(b) because of defects under Article 17(2)(a) and therefore have not been included with any invention.

Name and mailing address of the International Searching Authority  
  
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Authorized officer

**Mustafa Corapci**

This International Searching Authority found multiple (groups of) inventions in this international application, as follows:

1. Claims: 1-5, 69 (when claim 69 is depending on claims 1-5)

a method for chroma-keying with a backdrop illuminated with light from a source or sources away from the camera axis.

2. Claims: 6-9, 69 (when claim 69 is depending on claims 6-9)

a method of imaging a subject (object) against a backdrop, which subject (object) is at least partially covered by material comprising retroreflective elements.

3. Claims: 10-17,

70 (when claim 70 is depending on claims 10-13),  
71 (when claim 71 is depending on claims 10-12)

a backdrop substrate having a smooth surface.

4. Claims: 18-71 (when claim 69-71 are depending on claims 26-56 or 68)

a retroreflective studio backdrop or backdrop material with one- or two-pack ink comprising retroreflective elements in a polymeric matrix and methods of producing a retroreflective substrate comprising a binder system applied to a substrate in a fluid state

**\*\*Non-unity analysis\*\***

6 sets of claims:

\*Set 1: claims 1-5 and 69 (when claim 69 is depending on claims 1-5): a method for chroma-keying with a backdrop illuminated with light from a source or sources away from the camera axis

\*Set 2: claims 6-9 and 69 (when claim 69 is depending on claims 6-9): a method of imaging a subject (object) against a backdrop, which subject (object) is at least partially covered by material comprising retroreflective elements

\*Set 3: claims 10-17, 70 (when claim 70 is depending on claims 10-13) and 71 (when claim 71 is depending on claims 10-12): a backdrop substrate having a smooth surface

\*Set 4: claims 18-25: a method of producing a retroreflective substrate in which a binder system is applied in a fluid state to a surface of a substrate to form a polymeric matrix.

\*Set 5: claims 26-56 and 69-71 (when claims 69-71 are depending on claims 26-56): a retroreflective studio backdrop or backdrop material with one- or two-pack ink comprising retroreflective elements in a polymeric matrix.

\*Set 6: claims 57-71 (when claims 69-71 are depending on claim 68): a method for producing a substrate comprising the steps of making microbeads, suspending microbeads and reflective elements in a liquid

carrier medium comprising binder chemicals, applying the liquid carrier medium on the said substrate and causing the coupling agent to react.

It will be shown hereafter the lack of unity between the sets 1 and 2, the sets 1 and 3, the sets 1 and (4-6), the sets 2 and 3, the sets 2 and (4-6) and the sets 3 and (4-6).

- 1) Prior art
- 2) Description of the 6 sets
- 3) Single General Inventive Concept
- 4) Lack of Unity

\*\*\*\*\*

1) Prior art

The prior art GB 2 321 565 discloses a "method for chroma-keying deploying a coloured backdrop, optionally blue or green, with retroreflective elements and imaging with a camera a scene against the backdrop": (see page 1, lines 10-15; page 3, line 14 to page 6, line 16).

In this document, the retroreflectivity material leads to substantially uniform reflectivity over a wide range of entrance angles, see page 17, lines 13-14 and the retroreflective material has a normalised gain of at least 1/4 for incidence angles up to 80 degrees, and of at least 1/2 for incidence angles up to 60 degrees, see page 3, line 28 to page 29, line 3.

2) Description of the 6 sets

Set 1.

\*The subject-matter of claim 1 differs from the known prior art in that the backdrop is illuminated with light from a source or sources away from the camera axis.

From this we can formulate an objective problem of producing a chroma-key signal "without the use of a light source on the camera axis and without the use of high intensity, off-axis lighting" as cited in the application page 17, lines 19-21.

\*The subject-matter of claim 3 differs from the known prior art in that a chroma-keying light source is disposed off to the camera axis to an extent which does not impede auto-cueing.

The objective problem is that a light in the camera axis can shine straight at the eyes of the filmed person, see in the application page 19, line 8.

\* As the subject-matters of claims 1 and 3 are similar (light source away from the camera axis), claims 1, 3, and dependant claims 2, 4, 5, 69, are consequently part of the same single inventive concept (Rule 13(2) PCT).

Set 2.

\*The subject-matter of claim 6 differs from the known prior art in that a imaged subject is partially covered by material comprising retroreflective elements so that the covered parts of the subject are substantially indistinguishable from the backdrop when processing the image.

The objective problem is "filming of people who are not intented to be seen but actively control what is happening on screen", see in the application, page 22, lines 20-21.

\*The subject-matter of claim 8 differs substantially in the same way as the one in claim 6. In claim 8, the imaging concerns objects and manipulating subjects.

\* As the subject-matters of claims 6 ,8 are identical, claims 6, 8, and dependant claims 7, 9, 69, are consequently part of the same single inventive concept (Rule 13(2) PCT).

Set 3.

\*The subject-matter of claim 10 differs from the known prior art in that the backdrop substrate has a smooth surface.

From this we can formulate an objective problem of using any type of surface in a studio installation (such a wall or other fixed surfaces) as a backdrop substrate, see in the application, page 4, lines 9-13.

Set 4.

The subject-matter of claim 18 differs from the known prior art at least in that the method of producing a retroreflective substrate uses a binder system for adhering microbeads to a porous substrate, which binder system is applied in a fluid state to a surface of the substrate to form a polymeric matrix thereon and in which the binder is forcibly drawn into the substrate.

The objective problem is to get microbeads which may protude from the polymeric matrix formed on the surface of the substrate, page 25, line 5-7.

Set 5.

\* The subject-matter of claim 26 differs at least from the known prior art in that to a backdrop is applied a one-pack ink comprising retroreflective elements in a polymeric matrix.

From this we can formulate an objective problem of providing retroreflective studio background materials which are easier to make, see in the application page 2, lines 23-26.

\* The subject-matter of claim 27 differs at least from the known prior art in that to a backdrop is applied an ink comprising retroreflective elements in a polymeric matrix and a coupling agent.

From this we can formulate an objective problem of providing retroreflective studio background materials which are easier to make, see in the application page 2, lines 23-26.

\* As the subject-matters of claims 26 and 27 are similar, claims 26, 27, and dependant claims 28-56 and 69-71, are consequently part of the same single inventive concept (Rule 13(2) PCT).

Set 6.

The subject-matter of claim 57 differs at least from the known prior art in that the method for producing a substrate comprises the steps of making microbeads, suspending microbeads and reflective elements in a liquid carrier medium comprising binder chemicals for attaching the microbeads to the substrate to which the ink is applied, applying the liquid carrier medium on the said substrate and causing the coupling agent to react.

From this we can formulate an objective problem of providing retroreflective studio background materials which are easier to make, see in the application page 2, lines 23-26.

### 3) SINGLE GENERAL INVENTIVE CONCEPT

Some unifying Single General Inventive Concepts have already been determined in some of the above sets by using the special technical feature approach. As a result the 6 remaining sets 1-6 issue either different subject-matters or different objective problems.

It is the point hereafter to determine if some of the subject-matter of the sets 1-6 can still be linked by common or corresponding special technical features, which would gather some sets within the same Single General Inventive Concept as defined in Rule 13(2) PCT.

#### Sets 4,5,6:

It appears that the sets 4 and 5 are linked by at least a corresponding technical feature which is the polymeric matrix formed by the binder system in set 4 and the ink comprising retroreflective elements in a polymeric matrix in set 5.

As the feature of polymeric matrix is new in comparison to the known prior art and common to the 2 sets, we can consider that the sets 4 and 5 belong to a single general inventive concept as defined in Rule 13(2) PCT.

It appears that the sets 4 and 6 are linked by at least a corresponding technical feature which is a binder system for adhering microbeads to a porous substrate in set 4 and binder chemical for attaching the microbeads to the substrate in set 6.

As the binder system for adhering microbeads to a substrate is a new feature in comparison to the known prior art and common to the 2 sets, we can consider that the sets 4 and 6 belong to a single general inventive concept as defined in Rule 13(2) PCT.

So, compared to said prior art:

- set 5 belong to the same general inventive concept as set 4,
- sets 6 belong equally to the same general inventive concept as set 4, therefore the sets 4,5 and 6 are considered to belong to said general inventive concept (Rule 13(2) PCT).

As a consequence, it will be shown below the lack of unity between the 4 single general inventive concepts of subject 1, subject 2, subject 3 and subject 4, (subject 4 comprising the sets 4 to 6) as follow:

- between subject 1 and subject 2
- between subject 1 and subject 3
- between subject 1 and subject 4 (sets 4 to 6)
- between subject 2 and subject 3
- between subject 2 and subject 4 (sets 4 to 6)
- between subject 3 and subject 4 (sets 4 to 6) .

### 4) LACK of UNITY

#### Subject 1 - Subject 2:

It appears from the above comparison with the prior art and the subject-matter of subject 1 (claims 1-5,69) on one hand and the subject-matter of subject 2 (claims 6-9,69) on the other hand that no technical relationship as required by Rule 13(2) PCT exists between the subject-matter of subject 1 and subject 2, since the features distinguishing the subject-matters of said mentioned claims define neither the same nor a corresponding contribution over the prior art.

#### Subject 1 - Subject 3:

It appears from the above comparison with the prior art and the subject-matter of subject 1 (claims 1-5,69) on one hand and the subject-matter of subject 3 (claims 10-17,70,71) on the other hand that no technical relationship as required by Rule 13(2) PCT exists between the subject-matter of subject 1 and subject 3, since the features distinguishing the subject-matters of said mentioned claims define neither the same nor a corresponding contribution over the prior art.

**Subject 1 – Subject 4(sets 4 to 6):**

It appears from the above comparison with the prior art and the subject-matter of subject 1 (claims 1-5,69) on one hand and the subject-matter of subject 4 (sets 4 to 6) (claims 18-71) on the other hand that no technical relationship as required by Rule 13(2) PCT exists between the subject-matter of subject 1 and subject 4 (sets 4 to 6), since the features distinguishing the subject-matters of said mentioned claims define neither the same nor a corresponding contribution over the prior art.

**Subject 2 – Subject 3:**

It appears from the above comparison with the prior art and the subject-matter of subject 2 (claims 6-9,69) on one hand and the subject-matter of subject 3 (claims 10-17,70,71) on the other hand that no technical relationship as required by Rule 13(2) PCT exists between the subject-matter of subject 2 and subject 3, since the features distinguishing the subject-matters of said mentioned claims define neither the same nor a corresponding contribution over the prior art.

**Subject 2 – Subject 4(sets 4 to 6):**

It appears from the above comparison with the prior art and the subject-matter of subject 2 (claims 6-9,69) on one hand and the subject-matter of subject 4(4-6) (claims 18-71) on the other hand that no technical relationship as required by Rule 13(2) PCT exists between the subject-matter of subject 2 and subject 4(4-6), since the features distinguishing the subject-matters of said mentioned claims define neither the same nor a corresponding contribution over the prior art.

**Subject 3 – Subject 4(sets 4 to 6):**

It appears from the above comparison with the prior art and the subject-matter of subject 3 (claims 10-17,70,71) on one hand and the subject-matter of subject 4(4-6) (claims 18-71) on the other hand that no technical relationship as required by Rule 13(2) PCT exists between the subject-matter of subject 3 and subject 4(4-6), since the features distinguishing the subject-matters of said mentioned claims define neither the same nor a corresponding contribution over the prior art.

In conclusion the International Search Authority has therefore the opinion that four different inventions are claimed in the present application, which do not represent a group of inventions as from a single inventive concept as required by Rule 13(1) PCT.

**Annex to Form PCT/ISA/206  
COMMUNICATION RELATING TO THE RESULTS  
OF THE PARTIAL INTERNATIONAL SEARCH**

<b>International Application No</b> <b>PCT/GB 00/03336</b>
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1. The present communication is an Annex to the invitation to pay additional fees (Form PCT/ISA/206). It shows the results of the international search established on the parts of the international application which relate to the invention first mentioned in claims Nos.: **1-5, 69**
2. This communication is not the international search report which will be established according to Article 18 and Rule 43.
3. If the applicant does not pay any additional search fees, the information appearing in this communication will be considered as the result of the international search and will be included as such in the international search report.
4. If the applicant pays additional fees, the international search report will contain both the information appearing in this communication and the results of the international search on other parts of the international application for which such fees will have been paid.

**C. DOCUMENTS CONSIDERED TO BE RELEVANT**

Category °	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	EP 0 876 055 A (RT SET LTD) 4 November 1998 (1998-11-04) abstract column 4, line 10 - line 18 column 5, line 58 - column 6, line 1 figure 1 ---	1-5
Y	GB 2 321 565 A (BRITISH BROADCASTING CORP) 29 July 1998 (1998-07-29) cited in the application page 4, line 18 - page 5, line 21 page 18, line 23 - line 27 figure 5 ---	1-5
A	US 4 796 990 A (CROTHERS PAUL ET AL) 10 January 1989 (1989-01-10) column 2, line 35 - line 53 column 4, line 39 - line 45 figure 1 ---	1-5
A	US 5 117 283 A (KROOS DONNA S ET AL) 26 May 1992 (1992-05-26) column 2, line 19 - line 29 column 4, line 39 - line 50 column 5, line 24 - line 26 figure 1 --- -/-	1,2

Further documents are listed in the continuation of box C.

Patent family members are listed in annex.

° Special categories of cited documents :

- "A" document defining the general state of the art which is not considered to be of particular relevance
- "E" earlier document but published on or after the international filing date
- "L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)
- "O" document referring to an oral disclosure, use, exhibition or other means
- "P" document published prior to the international filing date but later than the priority date claimed

- "T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
- "X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
- "Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.
- "&" document member of the same patent family

Annex to Form PCT/ISA/206  
COMMUNICATION RELATING TO THE RESULTS  
OF THE PARTIAL INTERNATIONAL SEARCH

International Application No  
PCT/GB 00/03336

C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	<p>ERLAND J: "Blue-max high-power blue flux projector for large scale bluescreen composite photography" SMPTE JOURNAL, NOV. 1985, USA, vol. 94, no. 11, pages 1156-1165, XP002155159 ISSN: 0036-1682 page 1159, left-hand column, line 13 -middle column, line 19; figure 8 page 1162, middle column page 1164, middle column, line 27 -right-hand column, line 25; figure 15 -----</p>	1-5

**Patent Family Annex**

Information on patent family members

International Application No

PCT/GB 00/03336

Patent document cited in search report		Publication date		Patent family member(s)		Publication date
EP 0876055	A	04-11-1998	CA	2230430 A		01-10-1998
GB 2321565	A	29-07-1998	GB	2321814 A		05-08-1998
			GB	2338367 A		15-12-1999
US 4796990	A	10-01-1989		NONE		
US 5117283	A	26-05-1992		NONE		